Use Attainability Analysis

for

WBID 531 Brushy Creek

Submitted by
BWR

June 1, 2007

Submitted to:
Missouri Department of Natural Resources
Division of Environmental Quality
Water Protection Program

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	Brushy Creek
Missouri Water Body Identification (WBID) Number:	534
8-digit HUC: 10280101	County: DeKalb
Upstream Legal Description (from Table H):	Mouth
Downstream Legal Description(from Table H):	8, 57N, 29W
Number of sites evaluated	3
List all sites numbers, listed consequently upstream to downstream:	1, 2, 3

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

II. Subegmentation (fill this section out only in cases where subesgmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)	
Upstream Coordinates: UTM X Y	Downstream Coordinates: UTM X Y

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE		
GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

III. Discharger Facility Information (list all permitted dischargers on the stream)

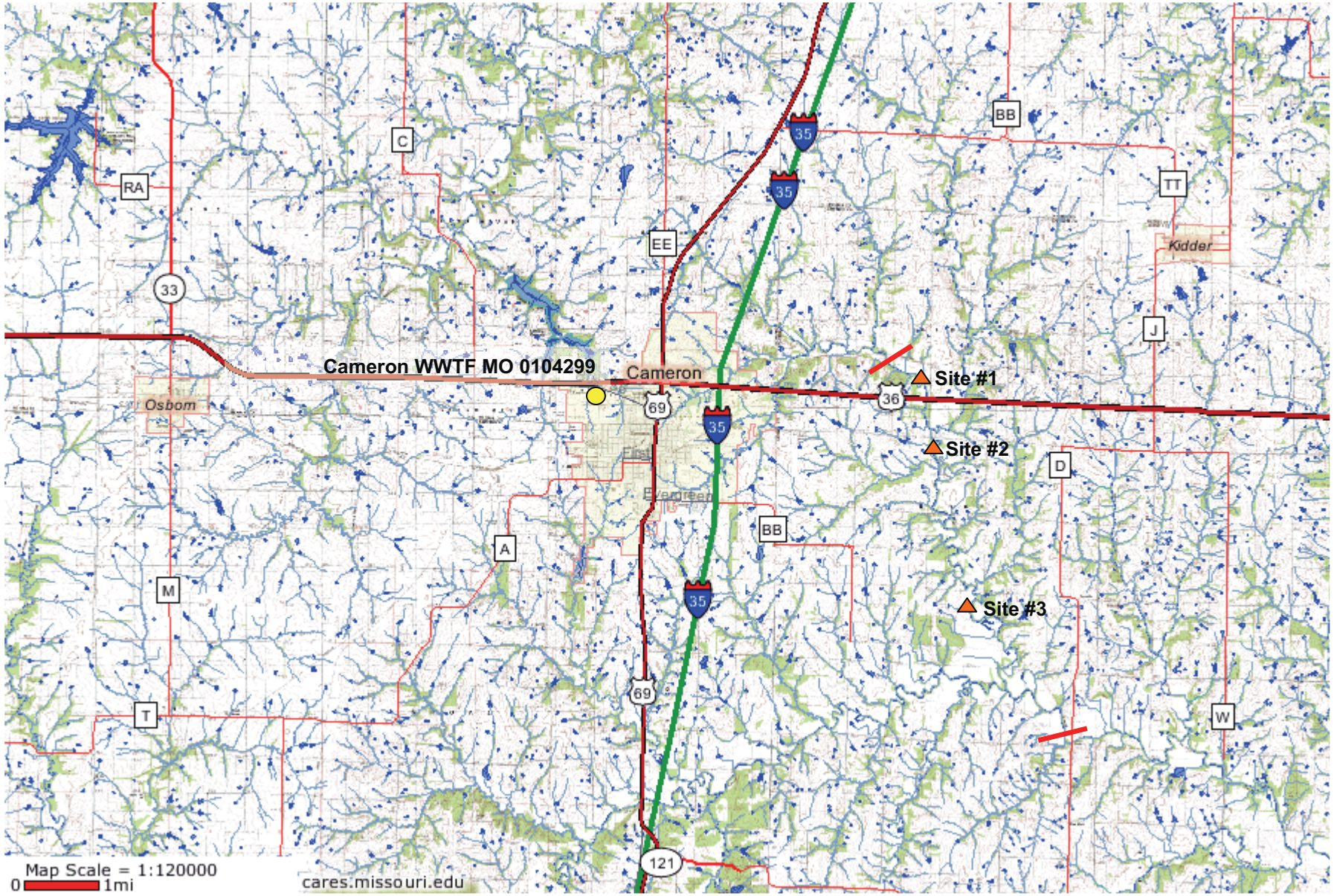
Discharger Facility Name(s):	Cameron WWTF
Discharger Permit Number(s):	MO 0104299

IV. UAA Surveyor (please print legibly)

Name of Surveyor: Ryan M. Lunt	Telephone Number:
Organization/Employer: Seagull Environmental Technologies	
Position: Environmental Scientist	

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Ryan M. Lunt **Date:** 05-25-07



BWR
Right in the Center

Brushy Creek
WBID #531

N

WBID# 531
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/25/07	Site Location Description (e.g., road crossing): Road crossing → Oregon R
Personnel (Data Collectors): Ryan Lunt	
Current Weather Conditions: overcast	Facility Name: Cameron WWTF
Weather Conditions for Past 10 days: Rainy	Permit Number: MO 0104299

Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 094.20779 °W Y: 39.76567 °N

HORIZONTAL COLLECTION METHOD (indicate the method used to determine the locational data)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	±_____Meters	
EPE	± 15 Feet or ±_____Meters	Source Map Scale: 1:24,000 1:100,000 Other_____
PDOP		±_____Feet or ±_____Meters

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
10	J-K	14 15	downstream @ B-A downstream @ B-A	100-0009-0013	360° → upstream, R bank, R bank downstream, L

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☑ None of the above	☐ Other:

Comments:

Indications of Human Use*: (attach photos)

☐ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☑ Other:

Comments: Trash — Gasoline tank, tires

% Channel Feature
RUN: 50
RIFFLE: 0
POOL: 50

*** Page Two – Data Sheet B for WBID # 531 : site 1**
Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Transect = 15 m

Downstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

15	% Cobble	0	% Gravel	30	% Sand	30	% Silt	25	% Mud/Clay	0	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

none in stream.
Riparian – grasses in water column, some log jams

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
Color:	☐ Clear	☐ Green	☑ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Ryan M Lunt Date of Survey: 05-25-07

Organization: SETI Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 521 Site # 1

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A	1	wetted width	<.1			1 Channel Feature:	
	2	2 m	<.1			2 Run	
	3		<.1			3	
	4	measurements	.1			4 Dissolved Oxygen	
	5	.2 m	.1			5	
	6	apart	.1			6 9.1 ppm	
	7		.1			7 99 %	
	8		.1			8	
	9		.1			9	
	10		<.1			10	
						11	
Transect B	1	wetted width	.2			12 Channel Feature:	
	2	3 m	.2			13 Run	
	3		.3			14	
	4	measurements	.3			15 Dissolved Oxygen:	
	5	.3 m	.3			16	
	6	apart	.3			17 8.10 ppm	
	7		.3			18 95 %	
	8		.2			19	
	9		.2			20	
	10		.1			21	
						22	
Transect C	1	wetted width	.1			23 Channel Feature:	
	2	1.5 m	.1			24 Run	
	3		.2			25	
	4	measurements	.2			26 Dissolved Oxygen	
	5	.25 m	.1			.	
	6	apart	.1			. 8.9 ppm	
	7		.1			. 100 %	
	8		.1			n	
	9		.1				
	10		.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M Lunt **Date:** 05-25-07

Organization: SBTF Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D 1	wetted width	.1			1 Channel Feature:	
2	7 m	.1			2 Run	
3		.1			3	
4	measurements	.1			4 Dissolved Oxygen	
5	.7 m	.1			5	
6	apart	.1			6 8.5	ppm
7		.1			7 93	%
8		.1			8	
9		.1			9	
10		.1			10	
					11	
Transect E 1	wetted width	.1			12 Channel Feature:	
2	7 m	.2			13 Run	
3		.2			14	
4	measurements	.1			15 Dissolved Oxygen:	
5	.7 m	.2			16	
6	apart	.2			17 8.5	ppm
7		.2			18 94	%
8		.1			19	
9		.1			20	
10		.1			21	
					22	
Transect F 1	wetted width	.3			23 Channel Feature:	
2	8 m	.4			24 Pool	
3		.3			25	
4	measurements	.4			26 Dissolved Oxygen	
5	.8 m	.4			.	
6	apart	.3			. 8.1	ppm
7		.3			. 90	%
8		.4			n	
9		.3				
10		.2				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan McLunt **Date:** 05-25-07

Organization: SETI Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 1

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect G	1	wetted width	.1			1 Channel Feature:	
	2	10 m	.2			2 RUN	
	3		.2			3	
	4	measurements	.1			4 Dissolved Oxygen	
	5	1.0 m	.2			5	
	6	apart	.4			6 8.9 ppm	
	7		.4			7 100 %	
	8		.3			8	
	9		.2			9	
	10		.2			10	
						11	
Transect H	1	wetted width	.1			12 Channel Feature:	
	2	2 m	.1			13 RUN	
	3	.2	<.1			14	
	4	measurements	.1			15 Dissolved Oxygen:	
	5	m	.1			16	
	6	apart	.1			17 9.0 ppm	
	7		.1			18 100 %	
	9		.1			19	
	9		.1			20	
	10		.1			21	
						22	
Transect I	1	wetted width	.1			23 Channel Feature:	
	2	2 m	.1			24 RUN	
	3	.2	.1			25	
	4	measurements	.1			26 Dissolved Oxygen	
	5	m	.1			.	
	6	apart	.1			. 8.9 ppm	
	7		.1			. 100 %	
	8		.1			n	
	9		<.1				
	10						

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M Lund **Date:** 05-29-07

Organization: SETR Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 1

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect 1	1 wetted width	.1			1 Channel Feature:	
	2 4 m	.2			2 RUN	
	3	.1			3	
	4 measurements	.2			4 Dissolved Oxygen	
	5 .3 m	.1			5	
	6 apart	.2			6 8.8	ppm
	7	.1			7 98	%
	8	.1			8	
	9	.1			9	
	10	.1			10	
					11	
Transect 2	1 wetted width	.1			12 Channel Feature: POOL	
	2 3 m	.2			13	
	3	.3			14	
	4 measurements	.2			15 Dissolved Oxygen:	
	5 .3 m	.3			16	
	6 apart	.2			17 8.5	ppm
	7	.2			18 95	%
	8	.1			19	
	9	.1			20	
	10	.1			21	
					22	
Transect	1 wetted width				23 Channel Feature:	
	2 m				24	
	3				25	
	4 measurements				26 Dissolved Oxygen	
	5 m				.	
	6 apart				.	ppm
	7				.	%
	8				n	
	9					
	10					

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan McLeod **Date:** 05-25-07

Organization: SETI Position: Environmental Scientist

WBID# 531
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: 5/25/07	Site Location Description (e.g., road crossing): crossing → old 36rd Trans A ~170 m downstream
Personnel (Data Collectors): Ryan Lint	
Current Weather Conditions: Sunny / Rainy / Storms	Facility Name: Cameron WWTF
Weather Conditions for Past 10 days: Sunny / Rainy	Permit Number: MO0104299

Drought Conditions?: No drought ☑; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION IN METERS)

Site GPS Coordinates: UTM X: 094.16447° W Y: 39.74350° N

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	±_____Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 20 Feet or ±_____Meters	±_____Feet or ±_____Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
17	Transect J-1	18	Trans. B-A	19, 20, 21, 22	upstream, R, downstream, L (Transect A)

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☑ None of the above	☐ Other:

Comments:

Indications of Human Use*: (attach photos)

☑ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments:

% Channel Feature
RUN: 90
RIFFLE: 0
POOL: 10

*** Page Two – Data Sheet B for WBID #** 531 : site 2

Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
5	20	70	2	0	

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

none
detritus in channel

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
Color:	☑ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☑ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Ryan M. Lint Date of Survey: 05-25-07

Organization: SCTI Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A 1	wetted width	.2			1 Channel Feature:	
2	12 m	.2			2 Run/Pool	
3		.2			3	
4	measurements	.4			4 Dissolved Oxygen	
5	1.2 m	.8			5	
6	apart	.8			6 8.3 ppm	
7		.10			7 91 %	
8		.6			8	
9		.4			9	
10		.2			10	
					11	
Transect B 1	wetted width	.1			12 Channel Feature:	
2	4.5 m	.1			13 Run	
3		.2			14	
4	measurements	.1			15 Dissolved Oxygen:	
5	.45 m	.1			16	
6	apart	.1			17 8.6 ppm	
7		.1			18 93 %	
8		.1			19	
9		.1			20	
10		.1			21	
					22	
Transect C 1	wetted width	.1			23 Channel Feature:	
2	4 m	.1			24 Run	
3		.1			25	
4	measurements	.2			26 Dissolved Oxygen	
5	1.4 m	.2			.	
6	apart	.2			. 8.2 ppm	
7		.2			. 91 %	
8		.2			n	
9		.1				
10		.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan McDaniel **Date:** 05-25-07

Organization: SFTI Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 2

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D	1	wetted width	.1			1 Channel Feature:	
	2	2 m	.1			2 Run	
	3		.2			3	
	4	measurements	.2			4 Dissolved Oxygen	
	5	.2 m	.2			5	
	6	apart	.2			6 8.3 ppm	
	7		.2			7 89 %	
	8		.1			8	
	9		.1			9	
	10		.1			10	
						11	
Transect E	1	wetted width	.1			12 Channel Feature:	
	2	3 m	.1			13 Run	
	3		<.1			14	
	4	measurements	<.1			15 Dissolved Oxygen:	
	5	.3 m	.1			16	
	6	apart	.2			17 8.2 ppm	
	7		.2			18 89 %	
	8		.2			19	
	9		.2			20	
	10		.1			21	
						22	
Transect F	1	wetted width	.3			23 Channel Feature:	
	2	2 m	.3			24 Run	
	3		.3			25	
	4	measurements	.3			26 Dissolved Oxygen	
	5	.1 m	.2			.	
	6	apart	.2			. 8.1 ppm	
	7		.2			. 88 %	
	8		.1			n	
	9		.1				
	10		.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan McDaniel **Date:** 05-25-07

Organization: SBT-E Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 2

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect G 1	wetted width	.2			1 Channel Feature:	
2	5 m	.1			2 Run	
3		<.1			3	
4	measurements	<.1			4 Dissolved Oxygen	
5	.5 m	.1			5	
6	apart	.2			6 8.1 ppm	
7		.2			7 91 %	
8		.2			8	
9		.2			9	
10		.2			10	
					11	
Transect H 1	wetted width	.2			12 Channel Feature:	
2	2 m	.3			13 Run	
3		.3			14	
4	measurements	.3			15 Dissolved Oxygen:	
5	.2 m	.2			16	
6	apart	.1			17 8.1 ppm	
7		.1			18 88 %	
9		.2			19	
9		.1			20	
10		.1			21	
					22	
Transect I 1	wetted width	.1			23 Channel Feature:	
2	2.5 m	.1			24 Run	
3		.1			25	
4	measurements	.1			26 Dissolved Oxygen	
5	.25 m	.1			.	
6	apart	.2			. 8.2 ppm	
7		.1			. 88 %	
8		.1			n	
9		.1				
10		.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

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Signed: Ryan M. Lund **Date:** 05-25-07

Organization: SCTF Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 2

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect 1	1	wetted width	.1			1 Channel Feature:	
	2	0.5m	.1			2 Run	
	3		.2			3	
	4	measurements	.1			4 Dissolved Oxygen	
	5	.05 m	<.1			5	
	6	apart	<.1			6 8.4	ppm
	7		.1			7 91	%
	8		.1			8	
	9		.1			9	
	10		<.1			10	
						11	
Transect 2	1	wetted width				12 Channel Feature:	
	2	4.5 m	.1			13 Run	
	3	.45	.2			14	
	4	measurements	.2			15 Dissolved Oxygen:	
	5	m	.3			16	
	6	apart	.3			17 8.6	ppm
	7		.2			18 93	%
	8		.2			19	
	9		.2			20	
	10		.2			21	
						22	
Transect	1	wetted width				23 Channel Feature:	
	2	m				24	
	3					25	
	4	measurements				26 Dissolved Oxygen	
	5	m				.	
	6	apart				. ____	ppm
	7					. ____	%
	8					n	
	9						
	10						

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Lunt **Date:** 05-25-07

Organization: SETE Position: Environmental Scientist

WBID# 531
Site# 03

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 5/25/07	Site Location Description (e.g., road crossing): ~170m crossing @ NW Barwick
Personnel (Data Collectors): Ryan Lutt	
Current Weather Conditions: Sunny	Facility Name: Cameron WWTF
Weather Conditions for Past 10 days: sun/rain	Permit Number: MO 0104299

Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 094.15501°W Y: 39.71460°N

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	±_____Meters	Source Map Scale: 1:24,000 1:100,000 Other_____
EPE	± 15 Feet or ±_____Meters	±_____Feet or ±_____Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
23	J-K Transect	24	B-A Transect	25-28	upstream, R, downstream, L

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☑ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☑ None of the above	☐ Other:

Comments:

Indications of Human Use*: (attach photos)

☑ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments:

% Channel Feature
3 RUN: 100
RIFFLE: 0
POOL: 0

*** Page Two – Data Sheet B for WBID #** 531 **: Site** 3

Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock

Reaches = 19 m apart

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☑ None	☐ Other:
Color:	☑ Clear	☐ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☑ Fine sediments	☑ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☑ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Ryan M. Lunt Date of Survey: 05-25-07

Organization: SGI Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A 1	wetted width	.1			1 Channel Feature:	
2	10 m	.1			2 Run	
3		.1			3	
4	measurements	.2			4 Dissolved Oxygen	
5	1 m	.2			5	
6	apart	.3			6 8.7 ppm	
7		.7			7 95 %	
8		.4			8	
9		.4			9	
10		.2			10	
					11	
Transect B 1	wetted width	.1			12 Channel Feature:	
2	6 m	.1			13 Run	
3		.1			14	
4	measurements	<.1			15 Dissolved Oxygen:	
5	10 m	<.1			16	
6	apart	.1			17 9.1 ppm	
7		.2			18 101 %	
8		.2			19	
9		.3			20	
10		.2			21	
					22	
Transect C 1	wetted width	.1			23 Channel Feature:	
2	4.5 m	.1			24 Run	
3		.2			25	
4	measurements	.2			26 Dissolved Oxygen	
5	4.5 m	.2			.	
6	apart	.2			. 9.1 ppm	
7		.2			. 101 %	
8		.1			n	
9		.1				
10		.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Lent **Date:** 05-25-07

Organization: SFEI Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 3

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D	1	wetted width	.1			1 Channel Feature:	
	2	4 m	.1			2 RUN	
	3		.2			3	
	4	measurements	.2			4 Dissolved Oxygen	
	5	.4 m	.2			5	
	6	apart	.2			6 9.4	ppm
	7		.2			7 107	%
	8		.2			8	
	9		.1			9	
	10		.1			10	
						11	
Transect E	1	wetted width	.1			12 Channel Feature:	
	2	11.5 m	.1			13 RUN	
	3		.2			14	
	4	measurements	.1			15 Dissolved Oxygen:	
	5	1.05 m	.1			16	
	6	apart	.1			17 9.2	ppm
	7		.1			18 107	%
	8		.2			19	
	9		.2			20	
	10		.1			21	
						22	
Transect F	1	wetted width	.1			23 Channel Feature:	
	2	10 m	.1			24 RUN	
	3		.1			25	
	4	measurements	.2			26 Dissolved Oxygen	
	5	1.0 m	.2			.	
	6	apart	.1			. 9.3	ppm
	7		.1			. 103	%
	8		.2			n	
	9		.2				
	10		.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
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Signed: Ryan M. Lau **Date:** 05-25-07

Organization: SBTI Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 521 Site # 3

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect G 1	wetted width	.2			1 Channel Feature:	
2	10 m	.2			2 Run	
3		.1			3	
4	measurements	.1			4 Dissolved Oxygen	
5	1.0 m	<.1			5	
6	apart	<.1			6 9.3 ppm	
7		<.1			7 103 %	
8		.1			8	
9		.2			9	
10		.3			10	
					11	
Transect H 1	wetted width	.1			12 Channel Feature:	
2	9 m	.2			13 Run	
3		.2			14	
4	measurements	.2			15 Dissolved Oxygen:	
5	1.0 m	.3			16	
6	apart	.4			17 9.2 ppm	
7		.3			18 102 %	
9		.2			19	
9		.2			20	
10		.2			21	
					22	
Transect I 1	wetted width	.2			23 Channel Feature:	
2	4 m	.3			24 ~~9.2~~ Run	
3		.2			25	
4	measurements	.2			26 Dissolved Oxygen	
5	1.0 m	.1			.	
6	apart	.1			. 9.2 ppm	
7		.1			. 103 %	
8		.1			n	
9		.1				
10		.1				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Lent **Date:** 05-25-07

Organization: SETE Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 531 Site # 3

		Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect 1	1	wetted width	.1			1 Channel Feature:	
	2	7 m	.2			2 Run	
	3		.2			3	
	4	measurements	.1			4 Dissolved Oxygen	
	5	.7 m	.1			5	
	6	apart	.1			6 9.4 ppm	
	7		.1			7 105 %	
	8		.1			8	
	9		.1			9	
	10		.1			10	
						11	
Transect 2	1	wetted width	.1			12 Channel Feature:	
	2	5 m	.1			13 Run	
	3		.1			14	
	4	measurements	.2			15 Dissolved Oxygen:	
	5	.5 m	.1			16	
	6	apart	.2			17 9.8 ppm	
	7		.2			18 107 %	
	9		.2			19	
	9		.3			20	
	10		.2			21	
						22	
Transect	1	wetted width				23 Channel Feature:	
	2	m				24	
	3					25	
	4	measurements				26 Dissolved Oxygen	
	5	m				.	
	6	apart				. ppm	
	7					. %	
	8					n	
	9						
	10						

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M Lee **Date:** 05-25-07

Organization: SCCF Position: Environmental Scientist

Transect A (Site #1) of Brushy Creek.

Transect A (Site #1) of Brushy Creek.

Transect A (Site #1) of Brushy Creek.

Transect A (Site #1) of Brushy Creek.

Transect A (Site #1) of Brushy Creek.

Downstream (Site #1) of Brushy Creek.

Downstream (Site #1) of Brushy Creek.

Upstream (Site #1) of Brushy Creek.

Upstream (Site #2) of Brushy Creek.

Downstream (Site #2) of Brushy Creek.

Transect A (Site #2) of Brushy Creek.

Transect A (Site #2) of Brushy Creek.

Transect A (Site #2) of Brushy Creek.

Transect A (Site #2) of Brushy Creek.

Upstream (Site #3) of Brushy Creek.

Downstream (Site #3) of Brushy Creek.

Transect A (Site #3) of Brushy Creek.

Transect A (Site #3) of Brushy Creek.

Transect A (Site #3) of Brushy Creek.

Transect A (Site #3) of Brushy Creek.

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

Stream Name Brushy Creek *(WBID #* 531)

I. Introduction

Date & Time (include AM or PM): 05-08-07 14:00

Interviewed: ☒ In person ☐ By phone ☐ By mail
(NOTE: If you are an Interviewee filling out this form to mail back to DNR, proceed to Question #1.)

Interviewee selected because (e.g., house next to stream; standing by stream, etc.)
The house is next to the stream; has been living here before 1975

Interviewer introduction to Interviewee: "My name is _____, I work for _(*name of your employer*)_____, and I am collecting information on how people use _(*name of the stream*)_____."

ASK:

1.) Are you willing to respond to a survey about this stream? (It will just take a few minutes.)
☒ Yes ☐ No If yes, list contact information for the interviewee below:
Legal name: Whitaker's
Current mailing address: 1057 NW Oregon St, Cameron, Mo
Daytime phone number: (____)_____
E-mail address (optional):

2.a.) Do you live in this area? ☒ Yes ☐ No
If yes, how many years?

2.b.) If you don't live nearby, are you still familiar with this stream? ☐ Yes ☐ No
If yes, how many years?
If no, thank the individual for taking the time to talk to you and conclude the interview.

3.) Are you familiar with this particular stretch of the stream? (show them the map, pointing out local landmarks such as roads, bridges, property lines) ☒ Yes ☐ No
If yes, proceed to "II. Personal Use?".
If no, proceed to Section V.

II. Personal Use?

1.) Have you or your family personally used the stream for recreation since November 28, 1975?
☐ Yes ☒ No
If yes, proceed to #3.
If no, proceed to #2.

2.a.) List reasons stream not used.
~~No ever uses~~ No one uses the stream; other areas ~~or have to~~ are available for recreational purposes

2.b.) Proceed to "III. Witnessed Use?".

3.) How do you use the stream?

Whole Body Contact Recreation			
Swimming ☐	Tubing ☐	Snorkeling/Skin Diving ☐	Water Skiing ☐

If Interviewee (or family) used the stream for WBCR since Nov. 28, 1975, ask:

4.a.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

4.b.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol).

Secondary Contact Recreation				
Fishing ☐	Wading ☐	Boating ☐	Trapping ☐	Other: ☐ List:

If Interviewee (or family) used the stream for SCR since Nov. 28, 1975, ask:

4.c.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

4.d.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol).

III. Witnessed Use?

1.) Have you observed others using this stream for recreation since Nov. 28, 1975? ☐ Yes ☒ No

If yes, proceed to #2.
If no, proceed to, "IV. Anecdotal Use?".

2.) What kinds of uses have you witnessed?

Whole Body Contact Recreation			
Swimming ☐	Tubing ☐	Snorkeling/Skin Diving ☐	Water Skiing ☐

If Interviewee witnessed WBCR use since Nov. 28, 1975, ask the following questions:

2.a.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

2.b.) Where, exactly? Describe specific location *and mark on the map* (Seemap requirements in the protocol)._____

Secondary Contact Recreation				
Fishing ☐	Wading ☐	Boating ☐	Trapping ☐	Other: ☐ List:

If Interviewee witnessed SCR use since Nov. 28, 1975, ask the following questions:

2.c.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

2.d.) Where, exactly? Describe specific location *and mark on the map* (Seemap requirements in the protocol)._____

IV. Anecdotal Use?

1.) Have you heard about anyone using this stream since Nov. 28, 1975 for recreation – not seen or done yourself, but just heard about it? ☐ Yes ☒ No

If yes, proceed to #2.

If no, thank the individual for taking the time to talk to you and conclude the interview.

2.) What kind of uses have you heard about?

Whole Body Contact Recreation			
Swimming ☐	Tubing ☐	Snorkeling/Skin Diving ☐	Water Skiing ☐

If Interviewee heard of WBCR use since Nov. 28, 1975, ask the following questions:

2.a.) When did these uses take place (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

2.b.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol)._____

Secondary Contact Recreation				
Fishing ☐	Wading ☐	Boating ☐	Trapping ☐	Other: ☐ List:

If Interviewee heard of SCR use since Nov. 28, 1975, ask the following questions:

2.c.) When did these uses take place (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

_____

_____

2.d.) Where, exactly? Describe specific location *and mark on the* (See map requirements in the protocol)._____

_____

_____

_____

V. Others to Contact?

Can you recommend someone else we could contact that knows the stream? ☐ Yes ☐ No
If yes, that person's contact info (name, address, phone, directions?)_____

_____

_____

If no, thank the individual for taking the time to talk to you and conclude the interview.

VI. Additional Comments

1.) From the Interviewee: _____

_____

_____

_____

_____

_____

2.) From the Interviewer:_____

_____

_____

_____

_____

VII. Information on Interviewer

Has interviewer been trained by Missouri DNR to conduct UAA Interviews?
☐ Yes ☐ No If yes, how (check all that apply):
Workshop? (if so, enter date): _____
On-line training seminar? _____
Followed Interview Instruction Sheets?_____
Other_____

Interviewer Information:
Signature: _____
Printed Name:_____
Employer (where applicable):_____
Interviewer's phone #:_____E-mail: _____